

EPS Hardware Reference Manual



24CHANNEL DIGITAL NPN TYPE INPUT MODULE

EPS-DI24N

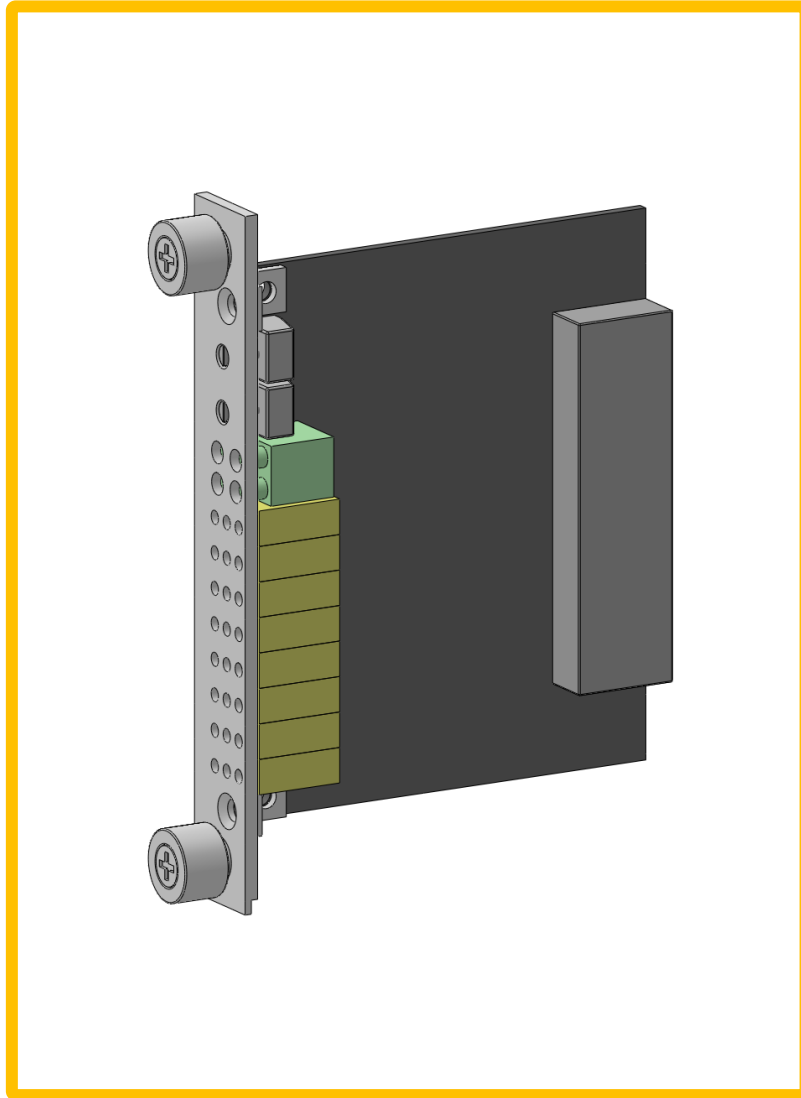
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개요



EPS - DI24N (Digital NPN Input 24ch)

EPS-DI24N은 커미조아의 EtherCAT 기반 제어기의 24채널 Digital 입력 모듈입니다.

각 채널의 내부 제어신호와 외부 입출력 신호는 포토커플러를 사용하여 절연됩니다.

본 매뉴얼은 EPS-DI24N의 하드웨어 구성과 기능에 대해 설명하는 하드웨어 매뉴얼입니다.

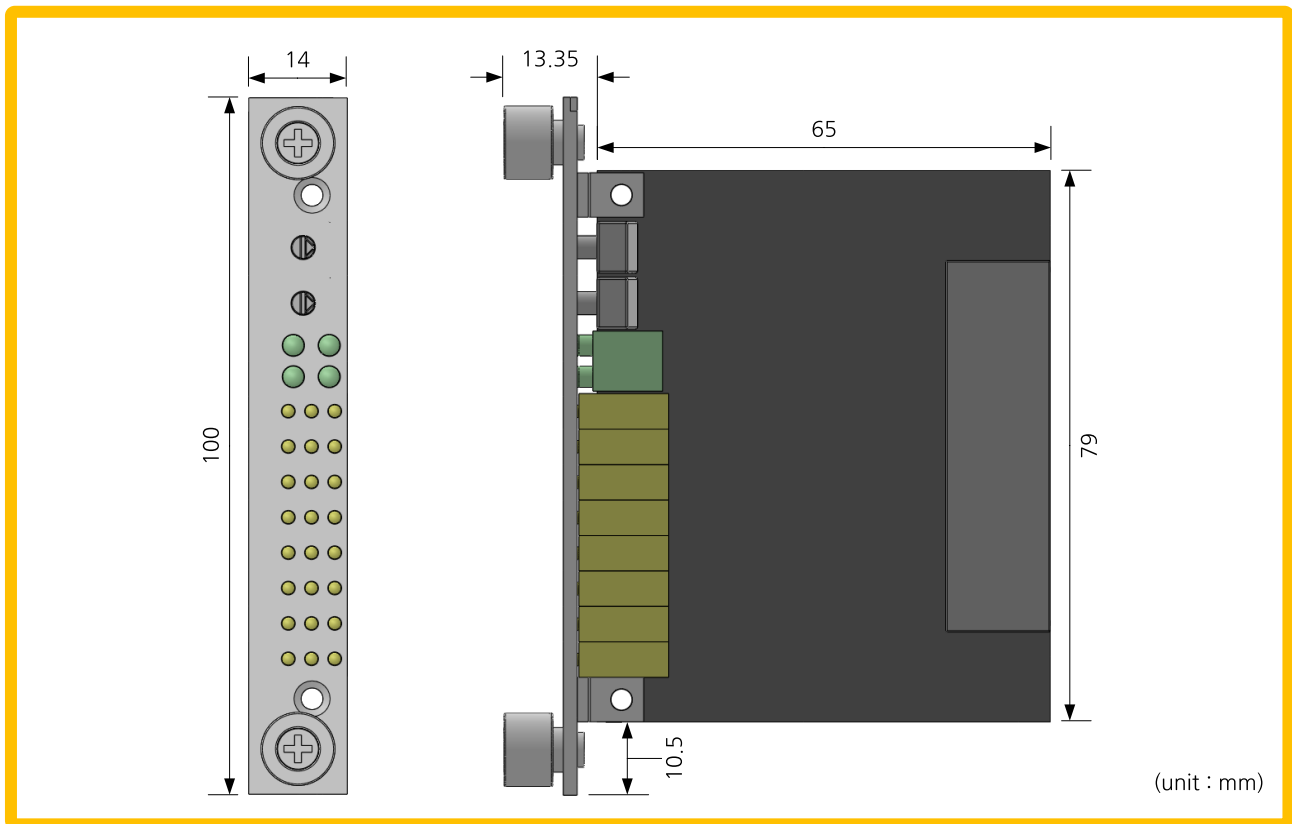
- EtherCAT Slave Module
- CiA Standard 401 and ETG.5001 Modular Device Profile
- Supports Terminal Device ID
- Digital I/O Power Over Current Protection
- Digital Input 24(NPN)
- Independent System Power

제품사양

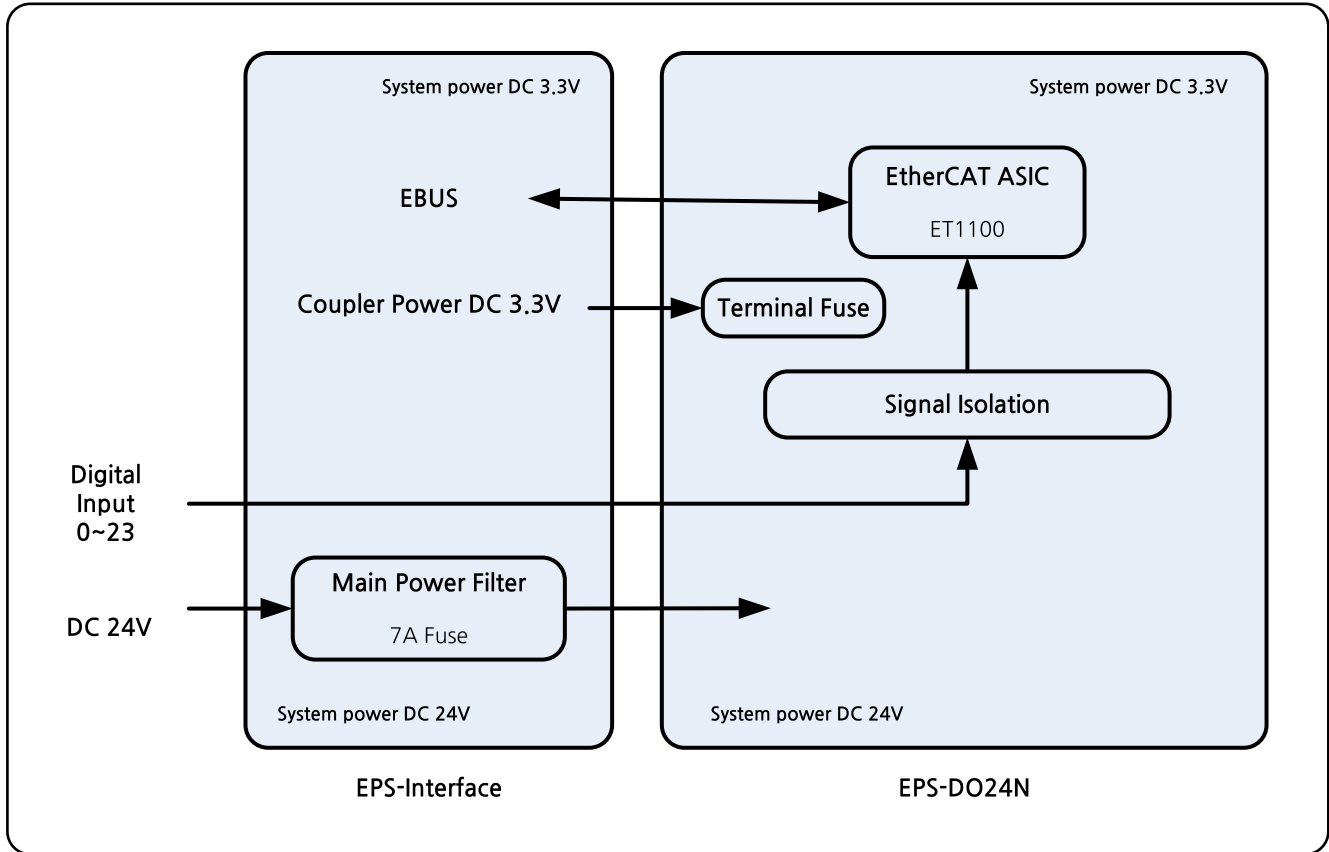
Contents	Details
Dimension	78.35 * 100 * 14 (mm)
Operating Temperature	0°C ~ 50°C
Storage Temperature	-20°C ~ 80°C
Humidity	5% ~ 90%, non-condensing
Power consumption	Power supply input +3.3V DC ± 5%, 100mA max

Environmental Specification

Contents	Details
Number of Inputs	24 input
Input type	Current Sinking type (NPN)
Isolation	Photo-coupler ($V_{iso} = 3,000V_{rms}$)
OFF State Voltage (logic ' 1')	Min. 11V DC ~ Max. 28.8 V DC (EN 61131-2, type 1/3)
On State Voltage (logic ' 0')	Min. 0V DC ~ Max. 5V DC (EN 61131-2, type 1/3)
On state Current	Max. 4.2mA per @ 28.8V DC
Input Impedance	Approx. 6.6K Ω (±5%)
Wiring contact (TE Connectivity)	INTERFACE : 1-1827872-3 CABLE : 1-1827863-3

Digital Input Specification

Dimension

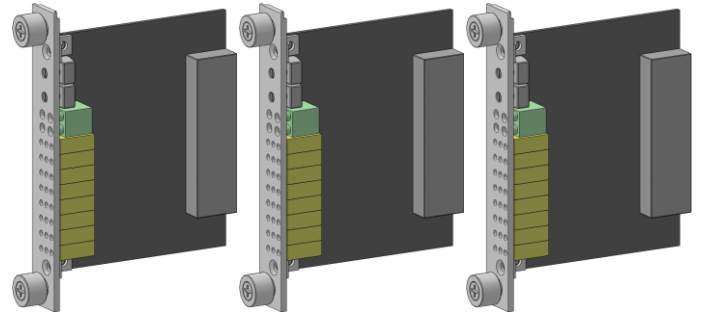
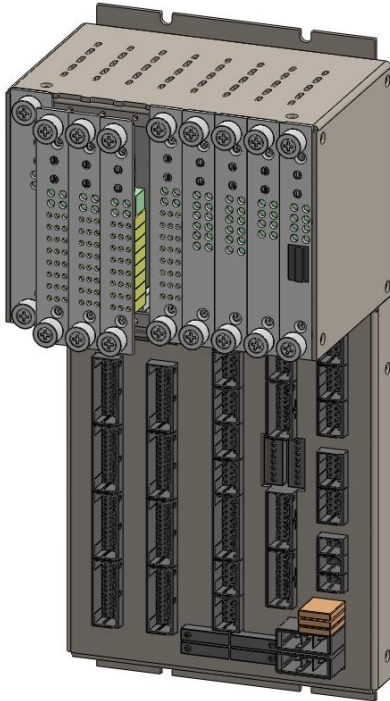
Block diagram



EPS-DI24N Block diagram

Interface

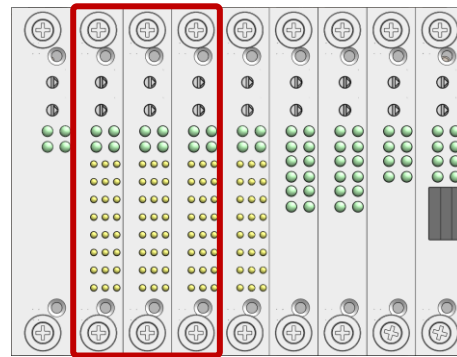
■ EPS-CHAMBER Connect



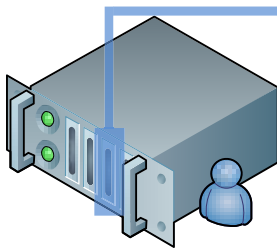
EPS-DI24N (1)

EPS-DI24N (2)

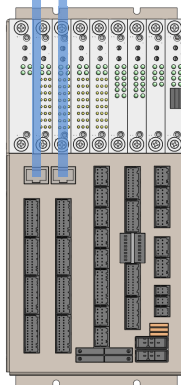
EPS-DI24N (3)



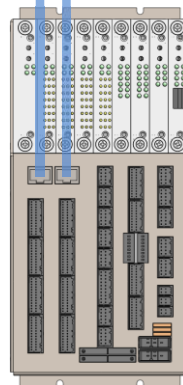
■ Slave Connect



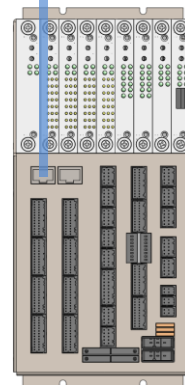
EtherCAT Master



EPS-CHAMBER (1)

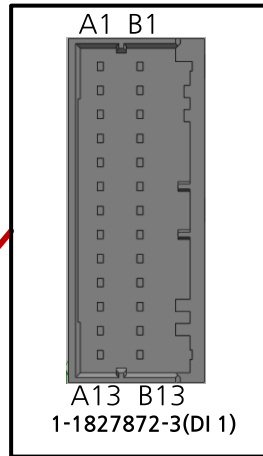
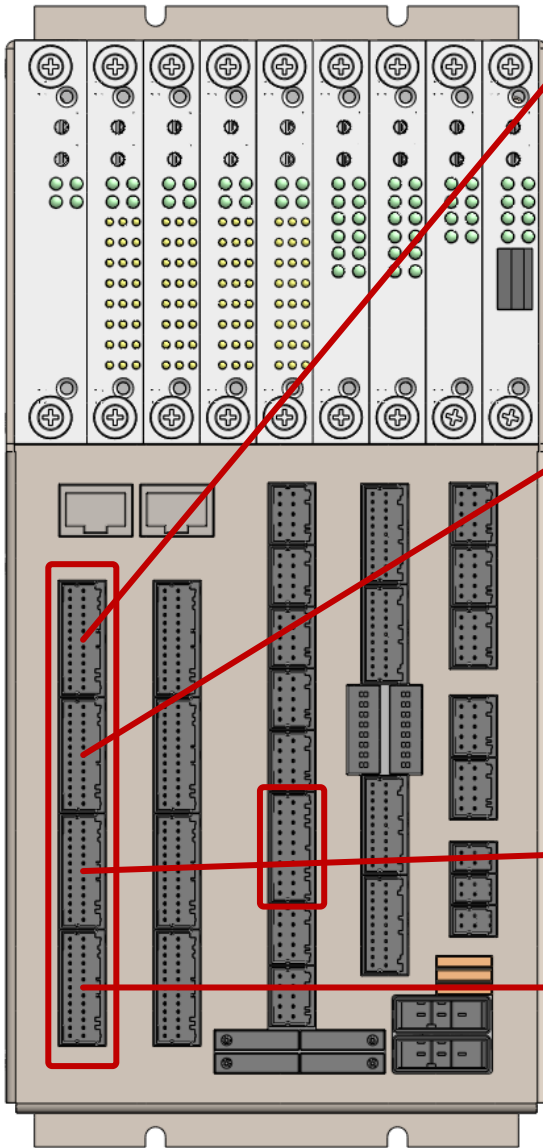


EPS-CHAMBER (2)

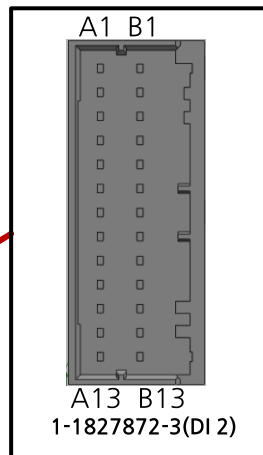


EPS-CHAMBER (n)

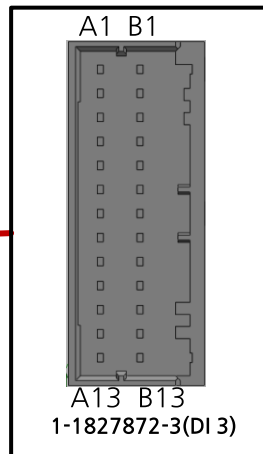
Connector



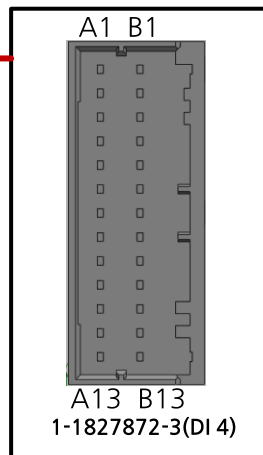
Pin #	A	B
1	P24V	P24V
2	DI 0	DI 4
3	N24V	N24V
4	P24V	P24V
5	DI 1	DI 5
6	N24V	N24V
7	P24V	P24V
8	DI 2	DI 6
9	N24V	N24V
10	P24V	P24V
11	DI 3	DI 7
12	N24V	N24V
13	-	-



Pin #	A	B
1	P24V	P24V
2	DI 8	DI 12
3	N24V	N24V
4	P24V	P24V
5	DI 9	DI 13
6	N24V	N24V
7	P24V	P24V
8	DI 10	DI 14
9	N24V	N24V
10	P24V	P24V
11	DI 11	DI 15
12	N24V	N24V
13	-	-



Pin #	A	B
1	P24V	P24V
2	DI 16	DI 20
3	N24V	N24V
4	P24V	P24V
5	DI 17	DI 21
6	N24V	N24V
7	P24V	P24V
8	DI 18	DI 22
9	N24V	N24V
10	P24V	P24V
11	DI 19	DI 23
12	N24V	N24V
13	-	-

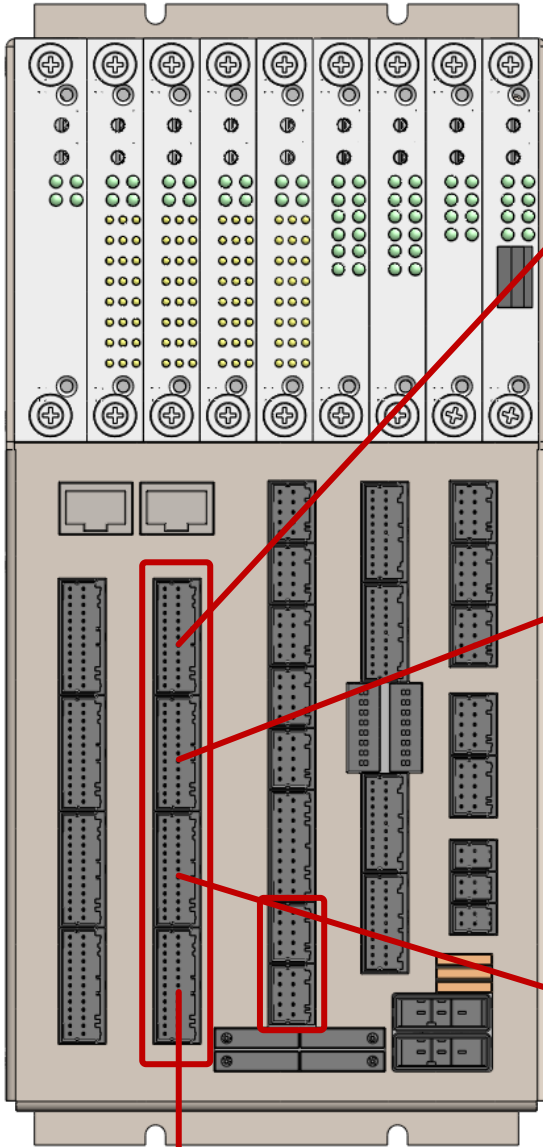


Pin #	A	B
1	P24V	P24V
2	DI 24	DI 28
3	N24V	N24V
4	P24V	P24V
5	DI 25	DI 29
6	N24V	N24V
7	P24V	P24V
8	DI 26	DI 30
9	N24V	N24V
10	P24V	P24V
11	DI 27	DI 31
12	N24V	N24V
13	-	-

Pin #	A	B
1	N24V	DI 63
2	OUT 02-1	OUT02-2
3	N24V	DI 64
4	OUT 03-1	OUT 03-2
5	N24V	DI 65
6	N24V	DI 66
7	P24V	DO 00
8	P24V	P24V_TRIP
9	-	-
10	-	-

A10 B10
1-1827875-0
(PMC_BOX_IO)

Connector



A1 B1		Pin #	A	B
 A13 B13 1-1827872-3(DI 5)		1	P24V	P24V
		2	DI 32	DI 36
		3	N24V	N24V
		4	P24V	P24V
		5	DI 33	DI 37
		6	N24V	N24V
		7	P24V	P24V
		8	DI 34	DI 38
		9	N24V	N24V
		10	P24V	P24V
		11	DI 35	DI 39
		12	N24V	N24V
		13	-	-

A1 B1		Pin #	A	B
 A13 B13 1-1827872-3(DI 6)		1	P24V	P24V
		2	DI 40	DI 44
		3	N24V	N24V
		4	P24V	P24V
		5	DI 41	DI 45
		6	N24V	N24V
		7	P24V	P24V
		8	DI 42	DI 46
		9	N24V	N24V
		10	P24V	P24V
		11	DI 43	DI 47
		12	N24V	N24V
		13	-	-

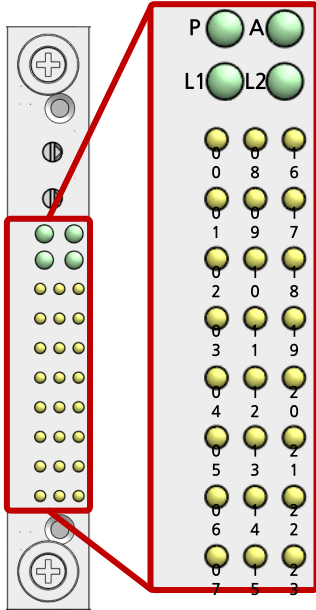
A1 B1		Pin #	A	B
 A13 B13 1-1827872-3(DI 7)		1	P24V	P24V
		2	DI 48	DI 52
		3	N24V	N24V
		4	P24V	P24V
		5	DI 49	DI 53
		6	N24V	N24V
		7	P24V	P24V
		8	DI 50	DI 54
		9	N24V	N24V
		10	P24V	P24V
		11	DI 51	DI 55
		12	N24V	N24V
		13	-	-

A1 B1		Pin #	A	B
 A5 B5 1-1827875-5(DOOR)		1	DI 67	N24V
		2	DI 68	N24V
		3	DI 69	N24V
		4	P24V	DO 1
		5	-	-

A1 B1		Pin #	A	B
 A5 B5 1-1827875-5(LFCIO)		1	N24V	DI 70
		2	N24V	DI 71
		3	OUT 04-1	OUT 04-2
		4	OUT 05-1	OUT 05-2
		5	P24V	P24V

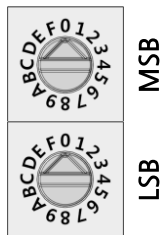
A1 B1		Pin #	A	B
 A13 B13 1-1827872-3(DI 8)		1	P24V	P24V
		2	DI 56	DI 60
		3	N24V	N24V
		4	P24V	P24V
		5	DI 57	DI 61
		6	N24V	N24V
		7	P24V	P24V
		8	DI 58	DI 62
		9	N24V	N24V
		10	P24V	P24V
		11	DI 59	-
		12	N24V	N24V
		13	-	-

Status LED



P	BOX POWER LED	ON	BOX POWER(3.3V DC) ON
		OFF	BOX POWER(3.3V DC) OFF
A	EtherCAT AL STATE LED	OFF	INIT
		Blinking(slow)	PRE-OP
		Single Flash	SAFE-OP
		ON	OP
		Flickering(fast)	BOOTSTRAP
L1	E-BUS 0 STATE LED	Blinking(slow)	E-BUS Port 0 OPEN
		OFF	E-BUS Port 0 Closed
L2	E-BUS 1 STATE LED	Blinking(slow)	E-BUS Port 1 OPEN
		OFF	E-BUS Port 1 Closed
Digital Input	INPUT STATE LED 0~23	ON	INPUT ON STATE (Logic '1')
		OFF	INPUT OFF STATE (Logic '0')

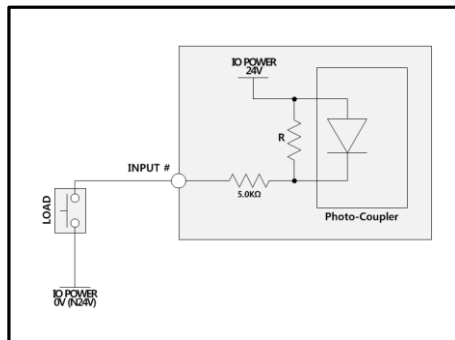
Device ID Setting



ID. Setting	$ID = MSB * 16 + LSB$
ID. Range	1 ~ 254

※ 각 Terminal의 ID는 Digital Input PDO로 입력됨.

Circuit Diagram (Digital Input)



Hardware Reference Manual Update List

No.	Version	Date	Changes in
1	1.00	2015.05.28	First Edition
2	1.01	2016.02.26	글꼴변경 (나눔고딕, 굴림)

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